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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,253	03/14/2001	Ikuya Tagawa	2500.65308	3355

7590

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Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
Suite 2500
300 South Wacker Dr.
Chicago, IL 60606

EXAMINER

LE, MINH

ART UNIT

PAPER NUMBER

2652

6

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,253

Applicant(s)

TAGAWA ET AL.

Examiner

Minh Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 16 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

1. This communication is responsive to Amendment filed Jan 16, 2003.
2. Claim 17 was added.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-10 and 17 are rejected under 35 U.S.C 102(b) as being anticipated by Ishi (U.S.P 5,800,935).**

Claims 1-10 rejections are respectfully maintained and incorporated by references as set forth in the first office action mailed October 17, 2002, paper # 4.

As per claim 17, Ishi teaches a magnetoresistive transducer in Fig. 1 comprising a magnetoresistive film 6 extending over a surface of a fundamental layer 3a (the gap layer in col. 3, line 51), a pair of domain control layers 7, 7 (longitudinal bias layer 7 for applying a longitudinal bias field to the MR layer in lines 37-38) extending over the surface of the fundamental layer so as to interpose the magnetoresistive film along the fundamental layer (Fig. 1), an upper shield layer 2b (col. 4, line 3) opposed to the magnetoresistive film at a first interface, said upper shield layer opposed to the domain control layers 8a, 8b at second interface, and at one groove formed on said upper shield layer 2b so as to isolate the first and second interfaces from each other.

It should be noted that the line denoted the interface (See Fig. 1) between the upper shield layer 2b and the gap layer 3b is not straight, the lower one is the second interface and the upper one is the first interface. The line denoted the interface between the upper shield layer and the coating layer 9 is not straight, the lower one indicates the groove on the upper shield layer 2b.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 11-16 are rejected under 35 U.S.C 103 (a) as being unpatentable over Ishi in view of Saito (U.S.P. 6,347,022), and further in view of Saito (U.S.P. 6,094,328).**

Claims 11-16 rejections are respectfully maintained and incorporated by references as set forth in the first office action mailed October 17, 2002, paper # 4.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 11 and 16 have been fully considered but they are not persuasive.

Applicant argued that:

A. The Ishi reference does not disclose an upper shield layer having first and second interface extending over a common datum plane.

Examiner's response to point A:

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The datum plane is an imagined plane that is not an apparatus element in the magnetoresistive transducer. The datum plane is created when the magnetoresistive transducer read the data on a disc.

According to the claim 1 invention regarding the magnetoresistive transducer apparatus, the Ishi reference teaches all the magnetoresistive transducer apparatus elements, which match to all the magnetoresistive transducer apparatus elements as claimed in the claim 1. Therefore, all the properties of both magnetoresistive transducer apparatus would be the same. In particular, the datum plane of both apparatus would have the same properties as claimed in the claim 1.

Therefore, the datum plane is inherent in the Ishi's magnetoresistive transducer and the first and second interface would be over the aforementioned datum plane.

B. Saito '328 does not disclose a magnetoresistive transducer having a product between the height of a raised portion and a magnetization intensity of an upper shield layer that is set smaller than the thickness and a magnetization intensity of a domain layer.

Let's denote P1 as to "the height of a raised portion and a magnetization intensity of an upper shield layer"

Let's denote P2 as to "the thickness and a magnetization intensity of a domain layer"

Applicant argued that Saito '328 does not discloses $P2 > P1$.

Examiner's response to point B:

Saito '328 recited in col. 2, lines 64-67/col. 3, lines 1-6 as "The intensity of the magnetic anisotropy applied to the second magnetic layer is proportional to the intensity of residual magnetism of the thickness of the hard magnetic layer, and can be arbitrarily set by the

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appropriate choice of the material and thickness of the hard magnetic material". So, Saito '328 suggested an appropriate choice of the material and thickness of the hard layer (domain layer).

It is noted that the magnetization intensity of a layer depends on the material used to make such layer.

According to the statement above, with a given P1 value, the P2 value could be set such that $P2 > P1$ by an appropriate choice of the material and thickness of the hard layer.

C. **Saito '022 reference does not disclose an upper shield layer magnetized in a reverse longitudinal direction opposite to the normal longitudinal.**

Examiner's response to point C:

It should be noted that there is no definition for "the normal longitudinal" direction. So, either direction could be the normal longitudinal direction.

Saito '022 teaches in Fig. 2 the magnetic field direction of the upper shield layer from right to left of the figure (See the arrow magnetic field points to the upper shield layer 31 in Fig. 2). But the normal magnetic field direction is assumed from left to right of the figure.

Therefore the Saito '002 reference teaches an upper layer magnetized in a reverse longitudinal direction opposite to the normal longitudinal.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

INQUIRES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Le whose telephone number is (703) 305-7867. The examiner can normally be reached on 10:00AM - 7:00PM (Mon- Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3718 for regular communications and (703) 305-3718 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



ML
March 28, 2003

WILLIAM KLIMOWICZ
PRIMARY EXAMINER